Liverpool John Moores University

Title:	MARINE ELECTRICAL POWER ENGINEERING
Status:	Definitive
Code:	**5071ENG** (115891)
Version Start Date:	01-08-2018
Owning School/Faculty:	Electronics and Electrical Engineering
Teaching School/Faculty:	Electronics and Electrical Engineering

Team	Leader
Michael Shaw	Y

Academic Level:	FHEQ5	**Credit Value:**	20	**Total Delivered Hours:**	72
Total Learning Hours:	200	**Private Study:**	128		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	42
Practical	6
Tutorial	21

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	60	3
Portfolio	AS2	Portfolio of laboratory/practical coursework	20	
Report	AS3	Case study	20	

Aims

The aims of this module is to provide a comprehensive introduction to Marine Electrical engineering, the module will concentrate on the principles, construction and operation of ac and dc motors and generators, and associated distribution and projection systems.

Learning Outcomes

After completing the module the student should be able to:

1	Describe the operation of linear and non-linear dc and ac electrical circuits and solve related problems
2	Explain the principles of magnetism and electromagnetism induction and solve related problems.
3	Demonstrate a knowledge of the principles and application of dc, ac motors and generators and solve related problems.
4	Discuss typical arrangements of marine dc and ac distribution systems and solve related problems.
5	Demonstrate a knowledge of typical control techniqies relevant to the marine industry

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

EXAM	1	2	3	4	5
Portfolio of laboratory/practi	1	2			
Case study	3	4			

Outline Syllabus

Alternating emf, waveform, phasor diagrams and power factor.
Single phase and three phase ac circuits.
Principles of electromagnetic induction.
Principles, construction, application and operation of different types of dc and ac motors.
Principles, construction, application and operation of dc generators, including load/speed control, excitation, protection and bus connection.
Principles, construction and operation of an ac generator, including load/speed control, waveform, excitation, protection and synchronizing.
Switch boards and distribution arrangements of marine dc and ac systems, including transformers.
Typical closed loop control systems including PID

Learning Activities

Formal lectures supported by tutorials, laboratory exercises and coursework.

Notes

This module principally aims detailed understanding of Marine Electro-technology in accordance with the MCA academic syllabus for certification of Class 1 and Class 2 Marine Engineers.